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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,650	11/20/2001	Moo-Jong Lim	8733.536.00-US (PATENT)	8857
30827	7590	04/20/2005	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			TRAN, HENRY N	
			ART UNIT	PAPER NUMBER
			2674	

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/988,650

**Applicant(s)**

LIM ET AL.

**Examiner**

HENRY N TRAN

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-16 and 18-20 is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submissions filed on 9/21/04 and 12/21/04 have been entered. Claims 1-16 and 18-20 remain pending in this application. Applicants' remarks provided in pages 2-3 of the submission filed 12/21/04 have been fully considered with the results set forth as follows.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al (U.S. Patent No. 6,115,016, hereinafter "Yoshihara") in view of Makino (U.S. Patent No. 6,570,554, hereinafter "Makino").

Yoshihara teaches a field sequential liquid crystal display device, comprising: a liquid crystal panel 21 having an upper substrate 2, a lower substrate 4, and an interposed liquid crystal

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layer 13, a data input driver 32, a back light 22 comprising of a LED array 7 having Red, Green, and Blue light sources, which are disposed serially and repeatedly at a lower corner of, and under the liquid crystal panel 21; a diffusing panel 6 (a light guiding plate and light diffusion plate 6); and a signal processing circuit 31 (a control signal generating circuit and image memory 31) for receiving image data DD for determine the average lamination and color data PD (Yoshihara says “pixel data”) for controlling the luminance of each of the light sources based on the determined lamination data, wherein, the signal processing circuit is further for controlling the transmissivity of the liquid crystal by turning on thin-film transistor 41 (TFT 41) during a frame utilizing sub-frames driving scheme; wherein, light sources are turned on and off during each sub-frame period while TFTs are turned on; see figures 1, 2, 5 and 6; col. 2, lines 3-9, lines 45-54; col. 7, line 39-65; col. 8, line 6-16; and col. 10, lines 34-54.

However, Yoshihara does not teach that the signal processing circuit 31 directly controls a luminance of each of the light source.

Makino discloses a field sequential liquid crystal display device utilizing color back-light light sources; wherein an integrated signal processing circuit 51 (Makino calls it as “a display control means 51”) for directly controlling a luminance of each of the light sources provided in a LED array back-light 54; see Fig. 3; and col. 2, line 56 to col. 3, line 4.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the integrated signal processing circuit as taught by Makino for providing an integrated signal processing circuit by integrating the circuits 31, 34, and 35 illustrated in Fig. 5 as taught by Yoshihara for producing the claimed invention because this would provide an

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improved and highly integrated signal processing circuit, which is compact and convenient to use, and reduces cost to manufacture. By this rationale, claims 1-12 are rejected.

***Allowable Subject Matter***

4. Claims 13-16 and 18-20 are allowed.

***Response to Arguments***

5. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

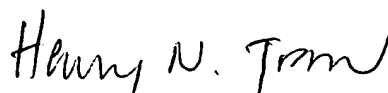
***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HENRY N TRAN whose telephone number is 571-272-7760. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, PATRICK N EDOUARD can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HENRY N TRAN  
Primary Examiner  
Art Unit 2674

4/17/05